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PATENT TRADEMARK OFFICE

Docket No.: 2681/OH422US0

Technology Center 2600

APR 11 2001

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Evgeny YAKHNICH et al.

Serial No.: 09/616,161

Filed: July 14, 2000

For: METHOD CHANNEL ORDER SELECTION AND CHANNEL ESTIMATION  
IN A WIRELESS COMMUNICATION SYSTEM

April 5, 2001

INFORMATION DISCLOSURE STATEMENT

Hon. Commissioner of  
Patents and Trademarks  
Washington, DC 20231

Sir:

This Information Disclosure Statement is submitted in accordance with  
37 C.F.R. 1.97, 1.98, and it is requested that the information set forth in this

statement and in the listed documents be considered during the pendency of the above-identified application, and any other application relying on the filing date of the above-identified application or cross-referencing it as a related application.

1. This IDS should be considered, in accordance with 37 C.F.R. 1.97, as it is filed:

(Check one of the boxes A-D)

☐ A. Within three months of the filing date of the above-identified national application or within three months of the entry into the national stage of the above-identified international application.

☒ B. before the mailing date of a first office action on the merits, or a first office action after filing a request for continued examination.

☐ C. after (A) and (B) above, but before the mailing date of a final rejection, a notice of allowance, or any other action that closes prosecution, and Applicants have made the necessary statement in box "i" below or paid the necessary fee in box "ii" below.

(check one of the boxes "i" and "ii" below:)

☐ i. Counsel states that, upon information and belief, each item of information listed herein was either (a) cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this IDS; or (b) was not cited in a communication from a foreign patent office in a counterpart foreign application and, to the knowledge of undersigned after making

Docket No.2681/OH422USO

reasonable inquiry, was not known to any individual designated in 1.56(c) more than three months prior to the filing of this IDS.

☐ ii.11. A check for the fee set forth in 1.17(p), presently believed to be \$180, is enclosed.

☐ D. after (A), (B) and (C) above, but before payment of the issue fee: Counsel states that, upon information and belief, each item of information listed herein was either (i) cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the IDS; or (ii) was not cited in a communication from a foreign patent office in a counterpart foreign application and, to the knowledge of the undersigned after making reasonable inquiry, was not known to any individual designated in 1.56(c) more than three months prior to the filing of this IDS.

☐ i. A check for the fee set forth in 1.17 (p), presently believed to be \$180, is enclosed.

2. In accordance with 37 C.F.R. 1.98, this IDS includes a list (e.g., form PTO-1449) of all patents, publications, or other information submitted for consideration by the office, either incorporated into this IDS or as an attachment hereto. A copy of each document listed is attached, except as explained below.

(check boxes A and/or B and fill in blanks, if appropriate.)

☐ A. Document(s) \_\_\_\_\_ is (are) deemed substantially cumulative to document(s) \_\_\_\_\_, and, in accordance with 1.98(c), only a copy of

Docket No.2681/0H422USO

each of the latter documents is enclosed.

☐ B. Certain documents were previously cited by or submitted to the Office in the following prior applications, which are relied upon under 35 U.S.C. 120:

[SERIAL NO. & FILING DATE].

Applicant identifies these documents by attaching hereto copies of the forms PTO-892 and PTO- 1449 from the files of the prior application(s) or a fresh PTO- 1449 listing these documents, and request that they be considered and made of record in accordance with 1.98(d). Per 37 CFR 1.98(d), copies of these documents need not be filed in this application.

☐ 3. Document(s) \_\_\_\_\_ are not in the English language. In accordance with 1.98(c), Applicant states:

- ☐ An English translation of each document (or of the pertinent portions thereof), or a copy of each corresponding English-language patent or application is enclosed.
- ☐ A concise explanation of the relevance of document(s) \_\_\_\_\_ is found in the attached search report (see MPEP § 609 A(3)x).
- ☐ A concise explanation of the relevance of document(s) \_\_\_\_\_ is set forth as follows: [Insert concise explanation of relevance]
- ☐ A concise explanation of the relevance of document(s) \_\_\_\_\_ can be found on page(s) \_\_\_\_\_ of the specification.

Docket No.2681/OH422USO

☐ A concise explanation of document(s) \_\_\_\_\_ can be found on the attached sheet.

☐ 4. No explanation of relevance is necessary for documents in the English language (see MPEP § 609 A(3)).

☐ 5. Other information being provided for the examiner's consideration follows:

6. In accordance with 37 C.F.R. 1.97(g) and (h), the filing of this IDS should not be construed as a representation that a search has been made or that information cited is, or is considered to be, material to patentability as defined in §1.56 (b), or that any cited document listed or attached is (or constitutes) prior art. Unless otherwise indicated, the date of publication indicated for an item is taken from the face of the item and Applicant reserves the right to prove that the date of publication is in fact different.

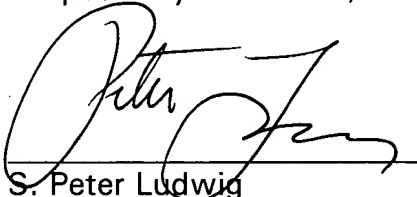
CROSS REFERENCE UNDER 37 C.F.R. §1.78 TO RELATED APPLICATIONS

Pursuant to 37 C.F.R. § 1.79, Applicant notes that the above-identified patent application may be related to the following U.S. Patent Applications:

(1) U.S. Patent Application Serial No \_\_\_\_\_, filed \_\_\_\_\_.

Early and favorable consideration is earnestly solicited.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'S. Peter Ludwig', written over a horizontal line.

S. Peter Ludwig  
Registration No. 25,351  
Attorney for Applicant(s)

DARBY & DARBY P.C.  
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FORM TO-1449

U.S. DEPARTMENT OF COMMERCE PATENT &amp; TRADEMARK OFFICE

SHEET 1 OF 2  
(REV. 7-80)**LIST OF REFERENCES CITED BY APPLICANT**

(Use Several Sheets if Necessary)

DOCKET NO.: 2681/OH422 SERIAL NO: 09/616,161  
APPLICANT: Evgeny YAKHNICH et al. FILING DATE: July 14, 2000  
CONFIRMATION NO:

**U.S. PATENT DOCUMENTS**

<u>*EXAMINER INITIALS</u>	<u>DOCUMENT NUMBER</u>	<u>DATE</u>	<u>NAME</u>	<u>CLASS</u>	<u>SUBCLASS</u>	<u>FILING DATE</u>
Y	1. 5,473,632	Dec. 1995	Riedel et al.	375	228	
Y	2. 5,715,279	Feb. 1998	Laakso et al.	375	224	
Y	3. 5,479,446	Dec. 1995	Mourot	375	243	
Y	4. 5,359,628	Oct. 1994	Muto	375	94	

**FOREIGN PATENT DOCUMENTS**

<u>*EXAMINER INITIALS</u>	<u>DOCUMENT NUMBER</u>	<u>DATE</u>	<u>COUNTRY</u>	<u>CLASS</u>	<u>SUBCLASS</u>	<u>TRANSLATION</u> <u>YES</u> <u>NO</u>
Y	5. 99/56440	Nov. 1999	PCT	H04L	25/02	
Y	6. 00/25530	May 2000	PCT	H04Q	7/00	Yes (Abstract only)
Y	7. 99/20061	Apr. 1999	PCT	H04Q	7/20	Yes (Abstract only)
Y	8. 0496152	Jul. 1992	Europe	H04L	25/30	

**OTHER REFERENCES****(INCLUDING AUTHOR, TITLE DATE, PERTINENT PAGES, ETC.)**

<u>*EXAMINER INITIALS</u>	
Y	9. Proakis, John G., Digital Communications, McGraw-Hill, Inc., 1989, pp. 610-611.
Y	10. Han, Youngyearl, "On The Minimization of Overhead in Channel Impulse Response Measurement", IEEE Transactions on Vehicular Technology, Vol. 47, No. 2, pp. 631-636, May 1998.
Y	11. Khayrallh, A.S., et al., "Improved Channel Estimation With Side Information", IEEE, pp.1049-1051, 1997.



FORM PTO-1449

U.S. DEPARTMENT OF COMMERCE PATENT & TRADEMARK OFFICE

SHEET 2 OF 2  
(REV. 7-80)

**LIST OF REFERENCES CITED BY APPLICANT**

(Use Several Sheets if Necessary)

DOCKET NO.: 2681/OH422 SERIAL NO: 09/616,161  
APPLICANT: Evgeny YAKHNICH et al. FILING DATE: July 14, 2000  
CONFIRMATION NO:

\*EXAMINER  
INITIALS

12. Boss, Dieter, et al., "Impact of Blind Versus Non-Blind Channel Estimation on The BER Performance of GSM Receivers", IEEE Signal Processing Workshop on Higher-Order Statistics, pp. 62-66, July 21-23, 1997.

13. Mehrotra, Asha, GSM System Engineering, Artech House Inc., 1997, pp.160-245.

14. Haykin, Simon, Adaptive Filter Theory, Prentice Hall, 1996, pp. 483-535.

15. Gerstacker, Wolfgang H., "Iterative Equalization With Adaptive Soft Feedback", IEEE, Not Dated.

EXAMINER:

DATE CONSIDERED: 9/26/03

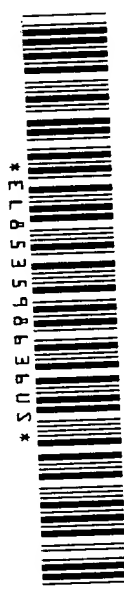
\*EXAMINER:

Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



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